

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

PARKERVISION, INC.,

Plaintiff,

v.

HISENSE CO., LTD. and HISENSE
VISUAL TECHNOLOGY CO., LTD. (F/K/A
QINGDAO HISENSE ELECTRONICS CO.),
LTD. and HISENSE ELECTRIC CO., LTD.

Defendants.

Case No. 6:20-cv-00870-ADA

JURY TRIAL DEMANDED

JOINT CLAIM CONSTRUCTION STATEMENT

In accordance with the Scheduling Orders entered in the above-captioned actions (DI 31 in Case No. 6:20-cv-00870 and DI 32 in Case No. 6:20-cv-00945), Plaintiff ParkerVision, Inc. and Defendants Hisense Co., Ltd. and Hisense Visual Technology Co., Ltd. (f/k/a Qingdao Hisense Electronics Co., Ltd. and Hisense Electric Co., Ltd.) (collectively “Hisense”) submit this Joint Claim Construction Statement. This Statement identifies the disputed constructions for claim terms found in U.S. patent nos. 6,049,706 (’706 patent); 6,266,518 (’518 patent); 6,580,902 (’902 patent); 7,110,444 (’444 patent); 7,292,835 (’835 patent); 8,588,725 (’725 patent); 8,660,513 (’513 patent); 9,118,528 (’528 patent); 9,246,736 (’736 patent) and 9,444,673 (’673 patent).

I. AGREED CONSTRUCTIONS

The parties agree that “the [] switch is coupled to the [] storage element at a node and coupled to a reference potential” (’474 patent, claim 1) should mean: “Plain and ordinary meaning, wherein ‘coupled’ is ‘directly connected through a conductor (or a closed switch).’”

II. DISPUTED CLAIM CONSTRUCTIONS

Claim Term	Proposed for Construction by	Plaintiff's Proposed Construction	Defendants' Proposed Construction	Patent(s); Claims(s)
"low impedance load"	Hisense	Plain and ordinary meaning	Indefinite	'736 patent, claims 26, 27; '673 patent, claim 5
"said energy discharged from said capacitor provides sufficient power to drive the low impedance load"	Hisense	Plain and ordinary meaning	Indefinite	'673 patent, claim 5
"Storage" terms	ParkerVision	<p>Energy storage element / storage element: "an element of an energy transfer system that stores nonnegligible amounts of energy from an input electromagnetic signal for driving a low impedance load."</p> <p>Energy storage module / storage module: "a module of an energy transfer system that stores nonnegligible amounts of energy from an input electromagnetic signal for driving</p>	<p>"an apparatus that stores non-negligible amounts of energy from the carrier signal."</p> <p>(all terms are indefinite under ParkerVision's proposed constructions)</p>	'706 claims 105, 114, 115, 164, 166, 168, 175, 179, 186, 190; '902 claim 1; '444 claim 3; '835 claims 1, 18, 20; '725 claims 1, 6, 17, 18, 19; '513 claim 19; '528 claims 1, 9; '736 claims 1, 11, 21, 26, 27; '673 claims 13, 17, 18

		<p>a low impedance load.”</p> <p>Energy storage device: “a device of an energy transfer system that stores non-negligible amounts of energy from an input electromagnetic signal for driving a low impedance load.”</p>		
“voltage of the input modulated carrier signal is not reproduced or approximated at the capacitor during the apertures or outside of the apertures”	Hisense	Plain and ordinary meaning	Indefinite	’673 patent, claim 2
“a down-convert and delay module to under-sample an input signal to produce an input sample of a down-converted image of said input signal, and to delay said input sample”	<u>Hisense</u>	<p><u>Not</u> subject to 35 U.S.C. § 112, ¶ 6</p> <p>Plain and ordinary meaning</p>	<p>Subject to 35 U.S.C. § 112, ¶ 6.</p> <p><u>Function</u>: “under-sample an input signal according to a control signal to produce an input sample of a down-converted image of said input signal, and to delay said input sample”</p> <p><u>Structure</u>: “the down convert and delay module 2624 in Fig. 26 and described at</p>	’706 patent, claims 1, 7

			26:1-27:21 and 28:2041, that includes the switches 2650 and 2654, and the capacitors 2652 and 2656; and equivalents thereof”	
“delay module” terms	<u>Hisense</u>	<p><u>Not</u> subject to 35 U.S.C. § 112, ¶ 6.</p> <p>Plain and ordinary meaning</p>	<p>Subject to 35 U.S.C. § 112, ¶ 6.</p> <p><u>Function</u>: “delay instances of an output signal / further delay one or more of said delayed and downconverted input samples”</p> <p><u>Structure</u>: “structure including “first delay module 2628,” “second delay module 2630” shown in Fig 26, “delay module 3204” shown in Fig. 32 and described at 35:1-18; the sample and hold circuit 4501 and 4503 in Fig. 45 and described at 32:44-33:19; or an analog delay line having a combination of capacitors, inductors and/or resistors described at 35:19-27; or equivalents thereof”</p>	’706 patent, claims 1, 7, 34, 140

“said control signal comprises a train of pulses having pulse widths that are established to improve energy transfer from said input signal to said down-converted image”	Hisense	Plain and ordinary meaning	Indefinite	'706 patent, claim 2
“means for under-sampling an input signal to produce an input sample of a down-converted image of said input signal”	<u>Hisense</u>	<p><u>Function</u>: under-sampling an input signal to produce an input sample of a downconverted image of the input signal and under-sampling the input signal according to a control signal</p> <p><u>Structure</u>: switch 2650 in Fig. 26; switch 5308 in Figs. 53A/53A-1; and equivalents thereof</p>	<p>Subject to § 112, ¶ 6.</p> <p><u>Function</u>: “under-sampling an input signal to produce an input sample of a downconverted image of said input signal and under-sampling the input signal according to a control signal”</p> <p><u>Structure</u>: “the switch 2650 and the capacitor 2652 in Fig. 26; the switch 5308 and capacitor 5310 in Figs. 53A/53A-1, and equivalents thereof”</p>	'706 patent, claim 6
“first delaying means for delaying said input sample”	<u>Hisense</u>	<p><u>Function</u>: delaying the input sample of a down-converted image of said input signal</p> <p><u>Structure</u>: capacitor 2656 in Fig. 26 or capacitor 5310 in Figs. 53A/53A1;</p>	<p>Subject to § 112, ¶ 6.</p> <p><u>Function</u>: “delaying said input sample”</p> <p><u>Structure</u>: “switch 2654 and capacitor 2656 shown in Fig. 26”</p>	'706 patent, claim 6

		and equivalents thereof		
“a frequency translator to produce a sample of a down-converted image of an input signal, and to delay said sample”	<u>Hisense</u>	<p><u>Not</u> subject to 35 U.S.C. § 112, ¶ 6.</p> <p>Plain and ordinary meaning</p>	<p>Subject to 35 U.S.C. § 112, ¶ 6.</p> <p><u>Function:</u> “produce a sample of a down-converted image of an input signal according to a control signal, and delay said sample”</p> <p><u>Structure:</u> “the downconvert and delay module 2624 in Fig. 26 and described at 26:1-27:21 and 28:20-41, that includes the switches 2650 and 2654, and the capacitors 2652 and 2656; and equivalents thereof”</p>	’706 patent, claim 34
“wherein said energy transfer signal generator in widening said apertures of said pulses by a non-negligible amount that tends away from zero time in duration to extend the time that said switch is closed for the purpose of increasing energy transferred from said input signal does so at the expense of reproducing said	Hisense	Plain and ordinary meaning	Indefinite	’706 patent, claim 111

input signal, such that said increased energy transferred from said input signal when said switch is closed in response to said energy transfer signal prevents substantial voltage reproduction of said input signal”				
“establishing apertures” terms	Hisense	Plain and ordinary meaning	Indefinite	’706 patent, claims 165, 107, 176, 187
“frequency down-conversion module”	Hisense	Plain and ordinary meaning	Subject to § 112, ¶ 6. <u>Function</u> : “to down-convert the input signal ... according to a [] control signal and output[] a [] down-converted signal.” <u>Structure</u> : an “aliasing module 2000” (blue) comprising at least one switch and one capacitor (Figures 20A and 20A-1).	’444 patent, claims 2, 3
“Under-Sample” / “Under-Samples” / “Under-Sampling”	ParkerVision	“sampling at an aliasing rate” or “sampling at less than or equal to twice the frequency of the input signal”	“sampling at less than or equal to twice the frequency of the input signal”	’706 patent, claims 1, 6, 7, 28; ’444 patent, claim 2
“harmonic” / “harmonics”	<u>ParkerVision</u>	<u>Harmonic</u> : “A sinusoidal component of a	<u>Harmonic</u> : “A sinusoidal component of a	’706 patent, claims 1, 6-7,

		<p>periodic wave that has a frequency that is an integer multiple of the fundamental frequency of the periodic waveform and including the fundamental frequency as the first harmonic”</p> <p><u>Harmonics</u>: “A frequency or tone that, when compared to its fundamental or reference frequency or tone, is an integer multiple of it and including the fundamental frequency as the first harmonic”</p>	<p>periodic wave that has a frequency that is an integer multiple of the fundamental frequency of the periodic wave”</p> <p><u>Harmonics</u>: “Sinusoidal components of a periodic wave each of which have a frequency that is an integer multiple of the fundamental frequency of the periodic wave”</p>	28, 34; ’518 patent, claim 1
“integral filter/frequency translator to filter and down-convert an input signal”	ParkerVision	Plain-and-ordinary meaning wherein the plain-and-ordinary meaning is “a circuit having a unified input filter and frequency translator.”	Plain and ordinary meaning	’706 patent, claim 28
“modulated signal” / “modulated carrier signal”	ParkerVision	“an electromagnetic signal at a transmission frequency having at least one characteristic that has been modulated by a baseband signal”	Plain and ordinary meaning	’706 patent, claim 127; ’513 patent, claim 19; ’528 patent, claims 1, 5; ’736 patent, claims 1, 11, 15; ’673 patent, claims 1, 2, 7, 13, 19

“universal frequency downconverter (UFD)”	ParkerVision	“circuitry that generates a down converted output signal from an input signal from a wide range of electromagnetic frequencies”	Plain and ordinary meaning	’518 patent, claim 50
[wherein said storage elements comprises] “a capacitor that reduces a DC offset voltage in said first-down converted signal and said second down converted signal”	ParkerVision	Plain and ordinary meaning wherein the “a capacitor” in each of the storage elements reduces a DC offset voltage in the corresponding downconverted signal	[wherein said storage elements comprises] “a capacitor that reduces a DC offset voltage in both said first down-converted signal and said second down-converted signal	’444 patent, claim 4
“DC offset voltage”	ParkerVision	Plain-and-ordinary meaning wherein the plain-and ordinary meaning is “the difference between the DC voltage of a signal and a reference voltage, e.g., ground”	Plain and ordinary meaning	’444 patent, claim 4
“sampling aperture”	ParkerVision	“a period of time during which the switch is in its closed (i.e., on) state”	“a period of time during which the switch is in its closed (i.e., on) state as part of the process of reducing a continuous-time signal to a discrete-time signal”	’513 patent, claim 19; ’528 patent, claim 1; ’736 patent, claims 1, 11; ’673 patent, claims 13, 17, 19
“switch” / “switching device” / “switching	ParkerVision	Plain-and-ordinary meaning wherein the plain-and-ordinary	Plain and ordinary meaning	’706 patent, claims 105, 107, 109, 111, 114, 115, 164,

module” / “switch module”		meaning is “an electronic device for opening and closing a circuit as dictated by an independent control input”		165, 166, 168, 175, 176, 179, 186, 187, 190; ’518 patent, claim 50; ’902 patent, claim 1; ’444 patent, claim 3; ’835 patent, claims 18, 19, 20; ’725 patent, claim 1; ’513 patent, claim 19; ’528 patent, claims 1, 5, 8, 17; ’736 patent, claims 1, 11, 15, 21, 26, 27; ’673 patent, claims 1, 6, 7, 13, 17, 18
“a down-converted signal being generated from said sampled energy”	ParkerVision	“a lower frequency signal formed from sampled energy transferred from the electromagnetic signal when the switch module is closed and from sampled energy discharged from the storage module when the switch module is open”	“a down-converted signal being created from sampled energy stored in the energy storage module”	’902 patent, claim 1

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